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Docket No.: 448/9-1907

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Marc LEWIS, et al	Conf. No.: 4826
Serial No.:	10/774,061	Group Art Unit: 3627
Filing Date:	February 6, 2004	
For:	DISCOUNT AND/OR LOYALTY REWARD SYSTEM AND RETAIL APPARATUS THEREFOR	

Commissioner for Patents
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TRANSMITTAL LETTER

Sir:

Enclosed is the certified copy of Great Britain Priority Document No. GB030426.5 for the above referenced application. The date of certification is March 17, 2004, and the document is submitted to perfect the applicant's claim for priority.

Respectfully submitted,


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26FEB03 E787691-1 D02094
P01/7700 0.00-0304264.5

Request for grant of a patent



1/77

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1. Your reference	SLG/43404GB1		
2. Patent application number	0304264.5	25 FEB 2003	
3. Full name, address and post code of the or each applicant	I-Coupons Limited C2 - Full Heights Thackeray Road London SW8 3TG <i>8573719001</i>		
Patents ADP number			
If the applicant is a corporate body, give the country/state of its incorporation	United Kingdom		
4. Title of the invention	Retail Apparatus		
5. Name of your agent	VENNER, SHIPLEY & CO		
"Address for service" in the United Kingdom to which all correspondence should be sent	20 LITTLE BRITAIN LONDON EC1A 7DH		
Patents ADP	1669004		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and the or each application number	Country	Priority application number	Date of filing
7. If this application is divided or otherwise derived from an earlier UK application, give the number and filing date of the earlier application	Number of earlier application		Date of Filing

Patents Form 1/77

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'YES' if:
a) any applicant in 3. above is not an inventor, or
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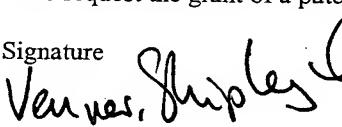
Continuation sheets of this form

Description	12
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Drawing(s)	7

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Priority documents	0
Translations of priority documents	0
Statement of inventorship and right to grant of a patent (<i>Patents Form 7/77</i>)	0
Request for preliminary examination and search (<i>Patents Form 9/77</i>)	0
Request for substantive examination (<i>Patents Form 10/77</i>)	0
Any other documents	0

11. I/We request the grant of a patent on the basis of this application.

Signature  Date
25 February 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

Stuart Geary
020 7600 4212

Retail Apparatus

Description

The present invention relates to a retail apparatus.

A long-established marketing technique is the provision of "money off" or discount coupons to members of the public. The coupons have been distributed by direct mail, leafleting and inclusion in magazines or newspapers. When members of the public receive such coupons, they can take them to a shop where, on purchasing the relevant product, they can obtain a discount.

The ownership of mobile phones has become ubiquitous in recent years and it has been proposed to send discount coupons to mobile phones, typically for display as a bar code. Recipients of such coupons can display a received coupon on their mobile phone at a check out and receive a discount.

All of the prior art systems attempt to replicate the traditional paper coupon process and often involve validation of coupons. Furthermore, when a consumer is purchasing a large number of items, e.g. a weekly family shop, there may be ten or more relevant coupons. It is time consuming for the consumer to determine which relevant coupons he or she has and then individually display them. This is annoying for the consumer and disliked by shops because it slows the flow of customers through its checkouts.

According to the present invention, there is provided a point of sale terminal comprising:

- a scanner means for reading product ids from products;
- a machine-to-machine data input device for receiving a user id from a communication user agent;
- network communication means; and
- processing means operable to accumulate a total purchase price in dependence on product id codes read by the scanner means and store said code values,

wherein the processing means is configured to be responsive to a user id from said data input device to:

transmit said user id to a remote location in a request message via the network communication means;

receive a response to said request message via the network communication means, the response containing a list of product id codes; and

reducing the accumulated purchase price in dependence on matches between elements in said list and said stored product codes.

10

Thus, only one code needs to be communicated from the user agent to the POS terminal for a consumer to obtain all available discounts and the process of claiming discounts is thereby shortened. The need to generate unique ids for coupons, which becomes difficult when millions of coupons are being issued, is avoided.

15

Preferably, the processing means is configured to be further responsive to a user id from the data input device to report said matches to a remote location via said network communication means. This enables the availability of individual discounts to a consumer to be limited to one or more uses.

20

Preferably, the scanner means is a bar code scanner. More preferably, the machine-to-machine data input device comprises said bar code scanner. Still more preferably, the processing means is configured to identify a user id by comparing a code from the bar code scanner with a range of codes not reserved for product ids.

25

According to the present invention, there is also provided a transaction apparatus comprising a point of sale terminal according to the present invention, in which the data input means is a bar code scanner, and a communication user agent, e.g. a mobile phone or PDA, wherein the communication user agent is operable to display a bar code representing a user id code.

According to the present invention, there is also provided a discount administration apparatus comprising:

- a WAN interface;
- a mobile communication network interface;
- a database containing data linking, directly or indirectly, a user id to one or more product ids and associated discount amounts; and
- 5 processing means,
- wherein the processing means is configured for sending said user id to a communication user agent via the mobile communication network interface and for responding to a request message, containing said user id, received via the WAN interface, by generating a response message containing product ids and discount
- 10 amounts linked to said user id in the database, and sending the response message to the source of the request message via the WAN interface.
- Preferably, the mobile communication network interface is an interface to a messaging service of a mobile phone network.
- 15 Preferably, the processing means is configured to be responsive to a further message, containing said user id and a product id, from said source to remove the link between said user id and the product id in the database.
- 20 A transaction apparatus according to the present invention and a discount administration apparatus according to the present invention may be combined in a single system, wherein the discount administration apparatus is located at the remote location and said source is the point of sale terminal.
- 25 An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:
- Figure 1 illustrates the major components of a first system according to the present invention;
- Figure 2 shows the database tables of the discount administration system in Figure 1 that are central to the operation of the first system according to the present
- 30 invention;
- Figure 3 is a dataflow diagram illustrating the operation of the POS terminal in Figure 1;

Figure 4 is a flowchart illustrating the major steps of the process of registering a user with the discount administration system in Figure 1;

Figure 5 is a flowchart illustrating the operation of the POS terminal in Figure 1;

Figure 6 is a flowchart illustrating the processing of a discount list request by the discount administration system in Figure 1; and

Figure 7 is a flowchart illustrating part of the operation of the POS terminal in more detail.

Referring to Figure 1, a system according to the present invention comprises a point-of-sale (POS) terminal 1, back office system 2 and a discount administration system 3. The POS terminal 1 includes a bar code scanner 4 and communicates with the back office system 2 via a local area network 5. Communication between the POS terminal 1 and the discount administration system 3 is via a router/firewall 6 and a wide area network 7 such as the Internet. The POS terminal 1 and the back office system 2 are located, in this example, in a supermarket.

The discount administration system 3 includes a mobile phone 8 to enable it to send SMS (short message service) messages to a user's mobile phone 9 via a mobile phone network 10. The discount administration system 3 runs web services server software. The mobile phone 8 at the discount administration system 3 may be replaced by a wired link to the message service of a mobile phone network operator. The user can take his or her mobile phone 9 to the POS terminal 1 for the transfer of identification information thereto.

The discount administration system 3 includes a relational database 11 which contains a plurality of tables.

Referring to Figure 2, the database includes user, retailer, brand and product tables 20, 21, 22, 23 and mapping tables 24, 25, 26 between retailers and products, users and retailers and users and products. The product table 23 includes a column for product UPC (Universal Product Code) codes. The retailer-product mapping table 24 identifies which products a particular retailer will give discounts on. The user/retailer mapping table 25 identifies users as belonging to loyalty schemes or

the like of particular retailers. The user/product mapping table 26 identifies whether a user is entitled to a discount on a particular product. There are additional tables containing, for example, user contact information.

- 5 The POS terminal 1 comprises a microcomputer provided with input and output devices, such as the bar code scanner 4, adapted for processing purchases and payments.

Referring to Figure 3, the POS terminal 1 runs a message-based operating system,
10 such as one of the varieties of Microsoft (RTM) Windows and a POS application program 30. Amongst other functions, the POS program 30 receives bar code data from the bar code scanner 4 and user inputs from a keypad 31, sends requests for product prices to the back office system 2 in dependence on received bar code data using a TCP/IP stack 32, displays information on a display 33 and prints out
15 receipts, credit card authorisations and the like using a printer 34. The prices received from the back office system 2 are used for calculating customers' bills.

The process of obtaining a discount on a purchase will now be described.

- 20 A user may be registered with the discount administration system 3 as part of registering for a retailer loyalty programme or directly with the operator of the discount administration system 3.

Referring again to Figures 2 and 4, in the user registration process, it is first
25 determined whether the user is being registered as part of a loyalty scheme registration (step s1). If the user is not being registered as part of a loyalty scheme, an entry is created in the database for the user (step s2). This process involves generating a unique id for the user and storing this in the user table 20.

- 30 If the registration is part of a loyalty scheme registration (step s1), it is determined whether an entry already exist in the user table 20 for the user (step s3). This could be achieved by matching name and address information provided by the loyalty scheme operator with user data in the database. However, it is preferred that the

loyalty scheme operator would obtain the user's id from the user as part of the loyalty scheme registration and pass this on to the discount administration system's operator.

- 5 If the user is not already registered (step s3), a new entry is created (step s4) in the same way as in step s2. In either case, a mapping between the user and the retailer operating the loyalty scheme is created in the user/retailer mapping table 25 (steps s3 and s4 respectively).
- 10 In the cases where a new user is registered, a bar code, corresponding to the new user's unique id, is sent to the user's mobile phone 9 in an SMS message. The bar code can be stored in a message folder in the mobile phone 9 but is preferable displayed on the mobile phone's screen where the network operator logo is normally found.

15

In order for a discount to be available, a brand owner and/or a retailer must decide to offer it.

- 20 In the case of a brand owner offering a discount, the product to which the discount applies is added to the product table 23, if necessary, and each user for whom the discount is available is then linked to the product by an entry in the user/product mapping table 26. The user/product mapping table entry identifies details of the discount amount and any additional criteria, e.g. two purchases required to get the discount, by including this information itself or by reference to another table. The
- 25 discount may be made available to all users or a subset thereof selected on a demographic or geographic basis.

- 30 In the case of a retailer offering a discount to everyone, the product to which the discount applies is added to the product table 23, if necessary. The product table row need not have a reference to a row in the brand owner table. A row is then added to the retailer/product mapping table 24 linking the product to the retailer. The new retailer/product mapping table row identifies details of the discount amount and any additional criteria, e.g. two purchases required to get the discount,

by including this information itself or by reference to another table. A row linking each user to the product is then added to the user/product mapping table and a flag is set therein to show that the discount is retailer-limited.

- 5 In the case of a retailer offering a discount to loyalty scheme members, the product to which the discount applies is added to the product table 23, if necessary. The product table row need not have a reference to a row in the brand owner table. A row is then added to the retailer/product mapping table 24 linking the product to the retailer. The new retailer/product mapping table row identifies details of the
10 discount amount and any additional criteria, e.g. two purchases required to get the discount, by including this information itself or by reference to another table. A user-limited flag is also set in the new entry. A row linking each user to the product is then added to the user/product mapping table and a flag is set therein to show that the discount is retailer-limited.

15

The process of providing discounts to a user at the POS terminal 1 will now be described.

- 20 The user owning the mobile phone 9 visits the supermarket where the POS terminal 1 is located and collects the items to be purchased in a basket or trolley. The items to be purchased are then taken to the POS terminal. Broadly, the POS terminal's operator scans the bar codes on the items to be purchased and then scans the user's id bar code on the screen of the mobile phone 9. Then the total purchase price is reduced by any discounts to which the user is entitled, having regard to the items
25 being purchased.

Referring to Figure 5, when a bar code is scanned using bar code scanner 4, the bar code value is supplied to the POS program 30 which first determines whether the bar code was a UPC (Universal Product Code) (step s101). If the code was a UPC
30 value, the POS program 30 requests the price of the product from the back office system 2 using the TCP/IP stack 32. Generally, the price will be returned and stored. Errors, e.g. unrecognised code, are handled in a conventional manner and the error handling has been omitted from Figure 5 in the interests of clarity.

If the bar code value is not a valid UPS value (step s101), it is determined whether the value is in a predetermined range reserved for discount administration system user ids (step s103). If the value is not such a user id, e.g. from a paper coupon,
5 appropriate processing, which is not relevant to the present invention, is performed (step s104).

However, if the bar code appears to be a valid user id, e.g. within the range reserved therefor, (step s103), the POS program 30 sends a request to the discount
10 administration system 3, using the TCP/IP stack 32, for a list of discounts available to the user identified by the id at the supermarket in which the POS terminal 1 is located. The discount list is provided by means of a web service, taking advantage of the encryption and authentication schemes available for http.

15 The body of the request is generally of the form:

```
<getDiscountList>
    <userId>barcode value</userId>
    <retailerId>retailer id</retailerId>
20   </getDiscountList>
```

When the request has been received by the discount administration system 3, and found to be formally correct, the userId and retailerId parameter are used to query the database 11.

25

Referring to Figure 6, the database is queried to obtain a list comprising the products for which the user can obtain a discount anywhere (step s201). In the present example, this query could be, in SQL:

```
30   SELECT product.upc, user_prod_map.limitation,
        user_prod_map.discount FROM
        product, user, user_prod_map WHERE
        user.id = userId AND
        user.index = user_prod_map.user AND
```

```
product.index = user_prod_map.product
```

Italics indicate a parameter value from the request message.

- 5 The database 11 is then queried for a list comprising the products for which the retailer is offering all users a discount (step s202). In the present example, this query could be in SQL:

```
10      SELECT product.upc, retailer_prod_map.limitation,  
          retailer_prod_map.discount FROM  
          product, user, user_retailer_map, retailer_prod_map  
          WHERE  
          retailer.id = retailerId AND  
          retailer.index = user_retailer_map.retailer AND  
          15      retailer.index = retailer_prod_map.retailer AND  
          retailer_prod_map.user_limited = 'False' AND  
          product.index = retailer_prod_map.product AND  
          user.id = userId AND  
          user.index = user_prod_map.user AND  
          20      product.index = user_prod_map.product
```

Italics indicate a parameter value from the request message.

- Finally, the database 11 is queried to obtain a list comprising the products for which
25 the retailer is offering loyalty scheme users a discount (step s203). In the present
example, this query could be in SQL:

```
30      SELECT product.upc, user_prod_map.limitation,  
          retailer_prod_map.discount FROM  
          product, user, user_prod_map WHERE  
          user.id = userId AND  
          retailer.id = retailerId AND  
          user.index = user_retailer_map.user AND  
          retailer.index = user_retailer_map.retailer AND  
          35      retailer_prod_map.user_limited = 'True' AND  
          retailer.index = retailer_prod_map.retailer AND
```

```
product.index = retailer_prod_map.product AND  
user.index = user_prod_map.user AND  
product.index = user_prod_map.product
```

- 5 Italics indicate a parameter value from the request message.

The preceding queries could be combined into a single SELECT statement.

- 10 Each of these queries provides a UPC code, a limitation, if any, and a discount amount for each product on which a discount is available. A response message is constructed from the query results (step s204). The body of the response message is generally of the form:

```
<getDiscountListResponse>  
15   <products>  
     <product>  
       <upc>UPC</upc>  
       <limitation>limitation</limitation>  
       <discount>discount</discount>  
20     </product>  
     <product>  
     ...  
     </product>  
   </products>  
25   </getDiscountListResponse>
```

The limitation may be a code or an algorithm that can be evaluated by the POS terminal 1.

- 30 Referring again to Figure 5, when the response has been received, the POS program 30 determines the total discount (step s106).

Referring to Figure 7, in order to determine the total discount, the POS program 30 searches the list of scanned bar codes for each of the UPC codes in the returned discount (steps s301, s305). In each case where there is a match (step s302), the

POS program 30 determines whether any associated limitations have been met (step s303) and, if so, adds the associated discount to an accumulated discount value (step s304).

- 5 Referring back to Figure 5, when all of the returned discounts have been processed, the POS program 30 reports the claimed discounts to the discount administration system 3 again using a web service method (step s107).

The body of the request may be generally of the form:

10 <setDiscountsClaimed>
 <userId>barcode value</userId>
 <discounts>
 <upc>product upc</upc>
15 ...
 </discounts>
 </setDiscountClaimed>

20 The discount administration system 3 then removes the rows linking the user to the discounted products from the user/product mapping table.

Finally, the POS terminal 1 subtracts the total discount from the total purchase price for the scanned goods and completes the transaction in the conventional manner (step s108).

25 The discount administration system 3 sends users SMS messages notifying the users of discounts that are available. These messages may be triggered by one discount having been taken advantage of. For example, on a hot summer's day a hardware retailer may decide to offer discounts on barbecue equipment. This discount is 30 notified to the discount administration system 3 where it is recorded in the database 11. Users are then alerted to the discount using an SMS message.

If a user buys a barbecue from the retailer, the claiming of the discount is registered by the discount administration system 3. On registering the claiming of the

discount, the discount administration system 3 sends another SMS message to the user to thank him or her for his or her purchase and to remind the user that sausages are available at a discount from another retailer.

- 5 It will be appreciated that many modifications may be made to the embodiment described above.

Claims

1. A point of sale terminal comprising:
 - a scanner means for reading product ids from products;
 - 5 a machine-to-machine data input device for receiving a user id from a communication user agent;
 - 10 network communication means; and
 - processing means operable to accumulate a total purchase price in dependence on product id codes read by the scanner means and store said code values,
 - 15 wherein the processing means is configured to be responsive to a user id from said data input device to:
 - transmit said user id to a remote location in a request message via the network communication means;
 - 20 receive a response to said request message via the network communication means, the response containing a list of product id codes; and
 - 25 reducing the accumulated purchase price in dependence on matches between elements in said list and said stored product codes.
2. A point of sale terminal according to claim 1, wherein the processing means is configured to be further responsive to a user id from the data input device to report said matches to a remote location via said network communication means.
- 25 3. A point of sale terminal according to claim 1 or 2, wherein the scanner means is a bar code scanner.
4. A point of sale terminal according to claim 3, wherein the machine-to-machine data input device comprises said bar code scanner.
- 30 5. A point of sale terminal according to claim 4, wherein the processing means is configured to identify a user id by comparing a code from the bar code scanner with a range of codes not reserved for product ids.

6. A transaction apparatus comprising a point of sale terminal according to claim 3, 4 or 5 and a communication user agent, wherein the communication user agent is operable to display a bar code representing a user id code.

5

7. A discount administration apparatus comprising:
a WAN interface;
a mobile communication network interface;
a database containing data linking, directly or indirectly, a user id to one or
10 more product ids and associated discount amounts; and
processing means,

wherein the processing means is configured for sending said user id to a communication user agent via the mobile communication network interface and for responding to a request message, containing said user id, received via the WAN
15 interface, by generating a response message containing product ids and discount amounts linked to said user id in the database, and sending the response message to the source of the request message via the WAN interface.

8. An apparatus according to claim 7, wherein the mobile communication
20 network interface is an interface to a messaging service of a mobile phone network.

9. An apparatus according to claim 7 or 8, wherein the processing means is configured to be responsive to a further message, containing said user id and a product id, from said source to remove the link between said user id and the
25 product id in the database.

10. A system including a transaction apparatus according to claim 6 and a discount administration apparatus according to claim 7, 8 or 9, wherein the discount administration apparatus is located at the remote location and said source is the
30 point of sale terminal.

11. A retail system providing discounts substantially as hereinbefore described with reference to the accompanying drawings.

Abstract

Retail Apparatus

Retail apparatus (1; 3) is arranged to provide discounts to users on the basis of
5 user ids communicated from a user agent (9) to a point of sale terminal (1). The
point of sale terminal (1) requests a list of discounts applicable to the received user
id from a discount administration system (3). The discounts in the returned list are
then applied where appropriate to the user's purchases.

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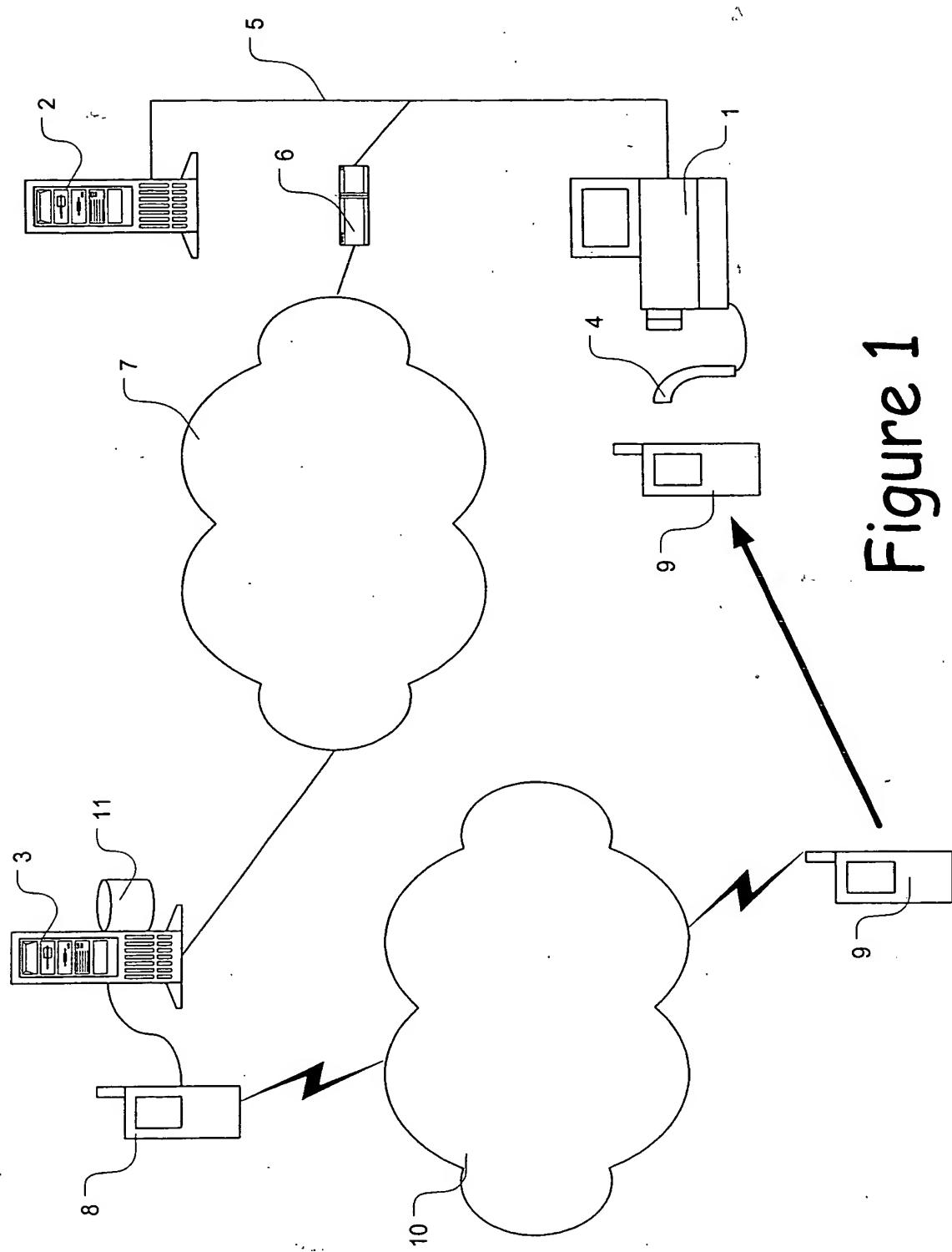


Figure 1

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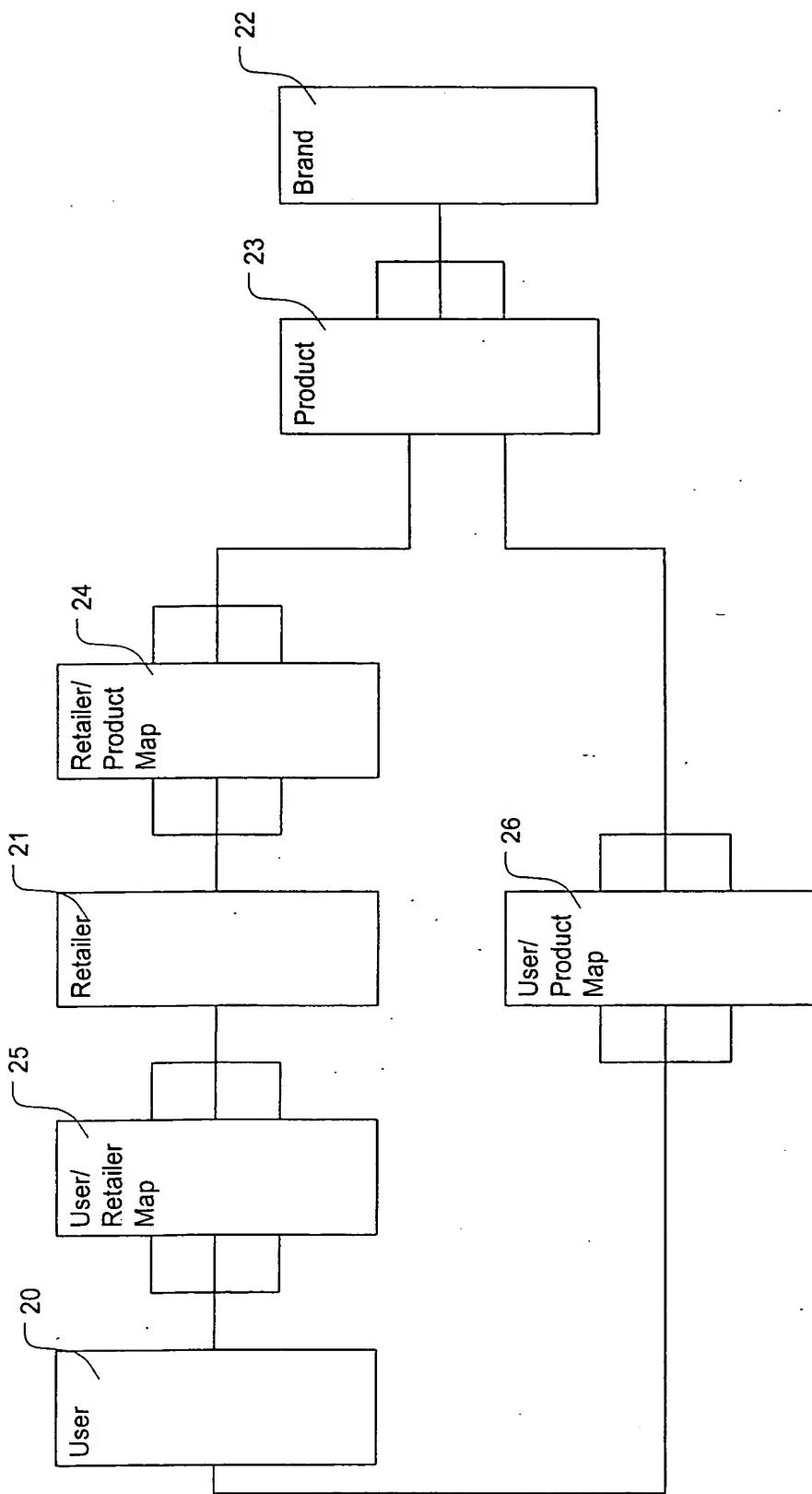


Figure 2

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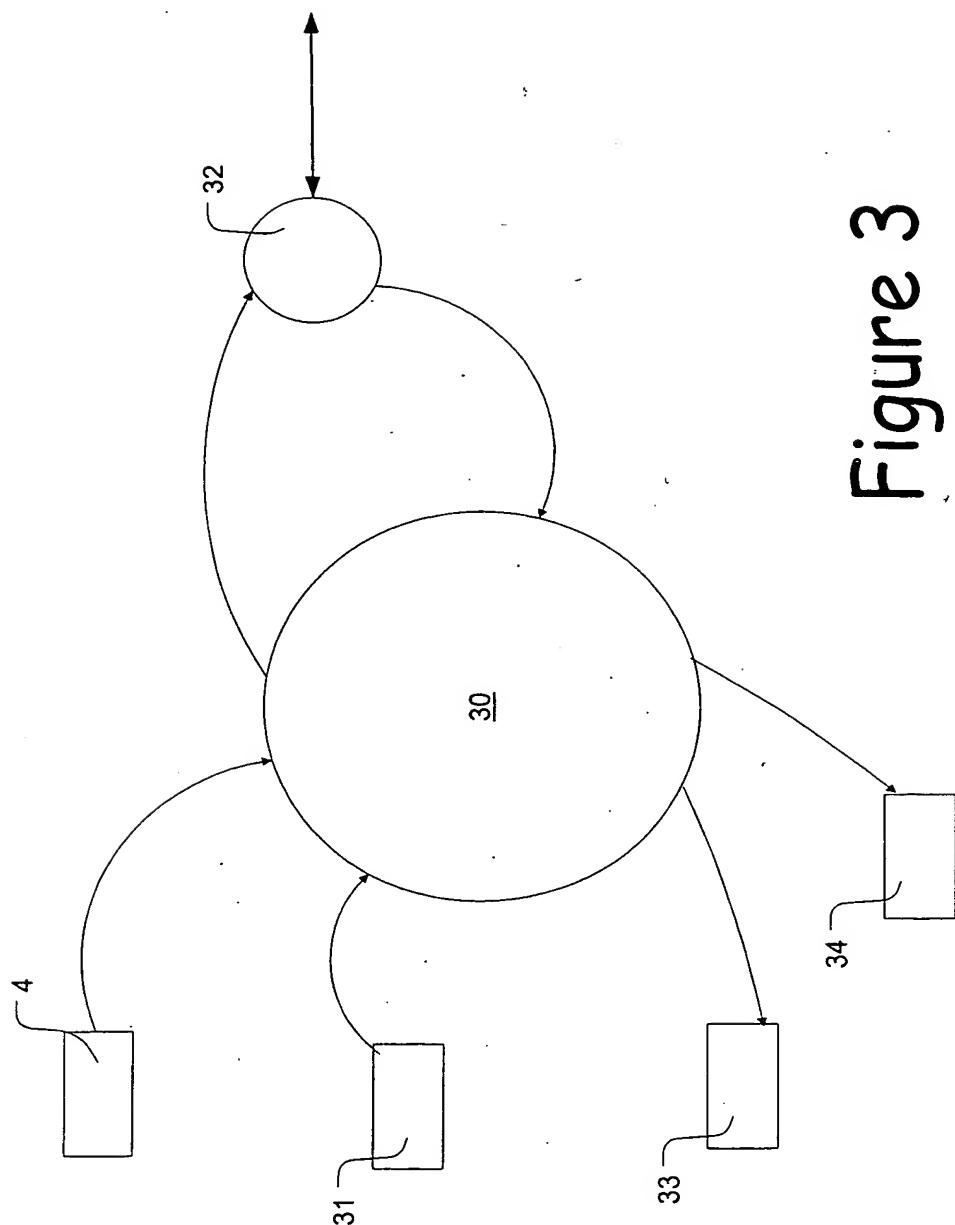


Figure 3

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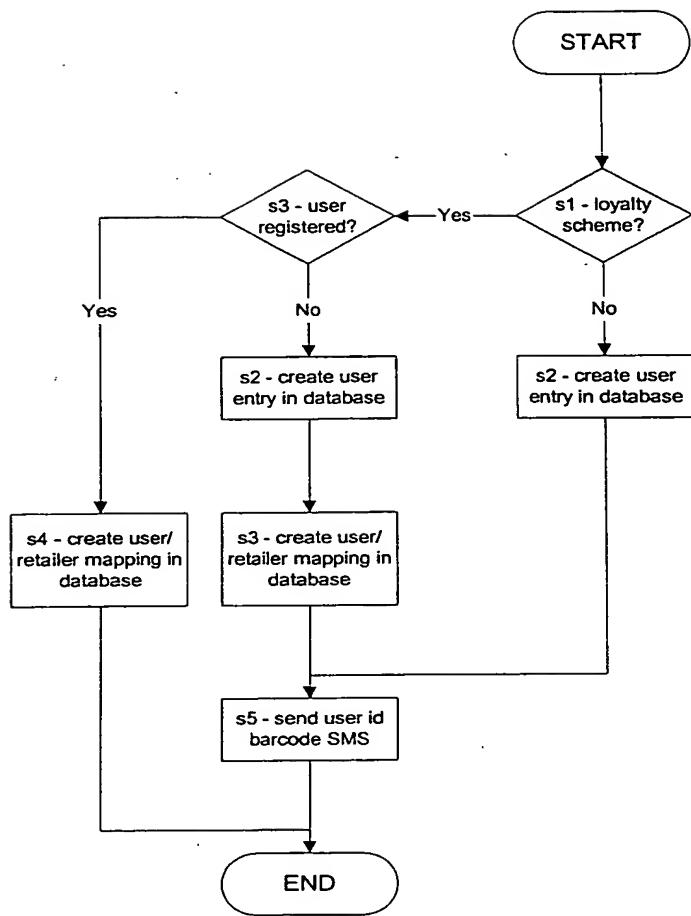


Figure 4

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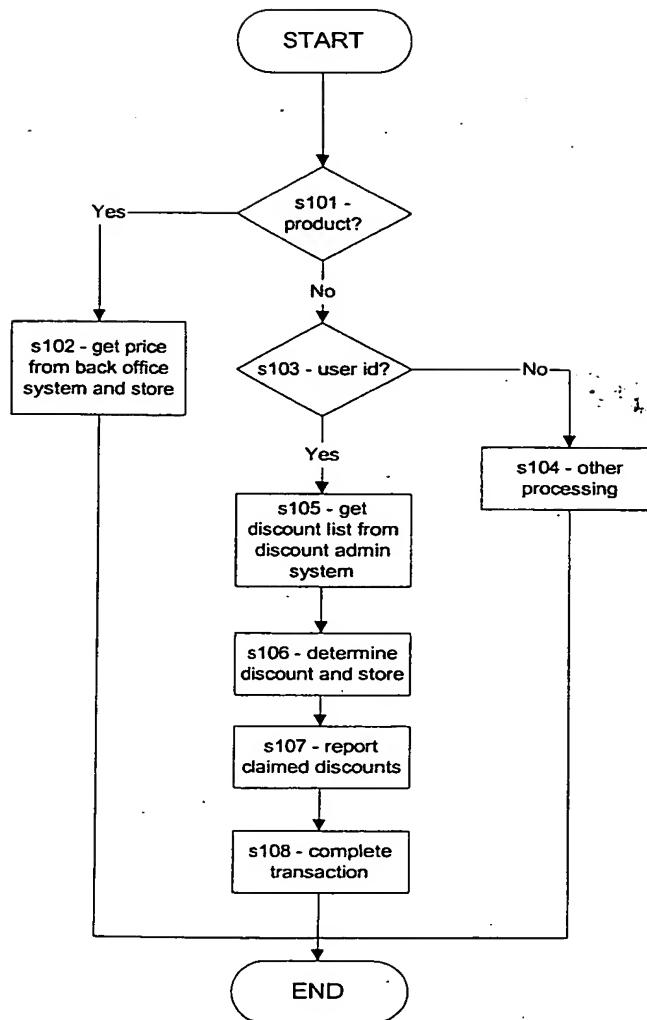


Figure 5

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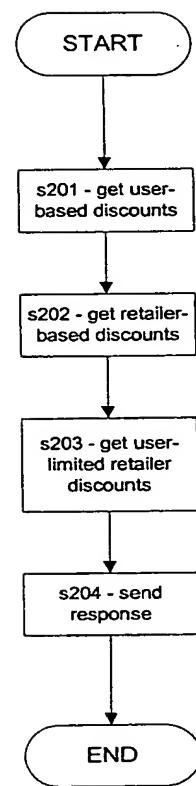


Figure 6

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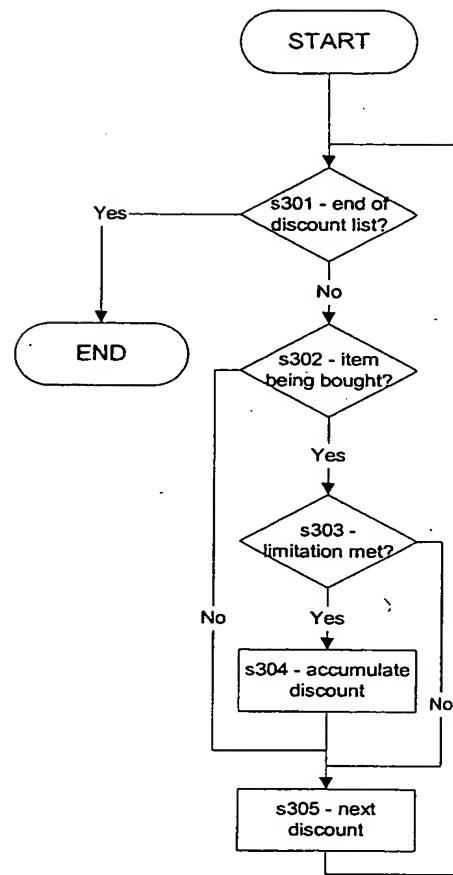


Figure 7

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